CLAIMS

1. A distortion correction method of a deformed image deriving from reading an optical code, said optical code comprising a plurality of elements and said deformed image comprising a plurality of points, a respective brightness value being associated with each point, characterized by the steps of:
- generating (24-26) a grid of said deformed image to identify a plurality of characteristic points in said deformed image; and
- generating a transformed image (28) formed by decoding points using a geometrical transformation correlating said characteristic points and said decoding points.

2. A method according to Claim 1, characterized in that said characteristic points are at least one for each element of said optical code.

3. A method according to Claim 2, characterized in that said characteristic points are central points of each element of said optical code.

4. A method according to Claim 1, characterized in that the step of determining the structure (21-23) of said code is carried out before said step of generating a grid (24-26).

5. A method according to Claim 4, characterized in that said step of determining the structure (21-23) comprises the step of determining the number of elements (22, 23) of said optical code.

6. A method according to Claim 4, characterized in that said step of determining the structure (21-23) comprises the step of determining the number of rows and columns (22, 23) of said optical code.

7. A method according to Claim 6, characterized in that said step of determining the number of rows and columns (22, 23) comprises the step of carrying out specific scans (22) on predetermined portions of said optical code.

8. A method according to Claim 7, wherein said optical code is a two-dimensional code having at least two clock lines (40, 41; 44, 45), characterized in that said step of carrying out specific scans (22) comprises the steps of acquiring brightness values of points of said deformed image along said clock lines and counting the number of elements on said clock lines.

9. A method according to Claim 6, characterized in that said step of generating a grid (24-26) comprises the step of defining a grid (24) comprising a number of row lines (N2) equal to said number of rows of said optical code and a number of column lines (N1) equal to said number of columns of said optical code.

10. A method according to Claim 9, characterized in that said grid is rectangular.

11. A method according to Claim 9, characterized in that said step of defining a grid (24) comprises the step of identifying coordinates of intersection points between said row and column lines of said grid.

12. A method according to Claim 9, characterized in that said step of defining a grid (24) comprises the step of identifying alternately, on adjacent row lines, coordinates of points arranged at intersection points of said row and column lines of said grid and, respectively, coordinates of median points between intersection points between said row and column lines.

13. A method according to Claim 1,

characterized in that said step of defining a grid (24-26) comprises the steps of:
- generating (24) a regular grid having a plurality of intersecting lines;
- on the basis of said intersecting lines, determining coordinates of notable points of said regular grid;
- determining a geometrical transformation (25) between said notable points of said regular grid and said characteristic points of said deformed image; and
- calculating (26) the coordinates of said characteristic points by applying said geometrical transformation to said coordinates of said notable points.

14. A method according to Claim 13, characterized in that said step of determining a geometrical transformation (25) comprises the steps of:
- acquiring coordinates of reference points (V1-V4) of known position in said deformed image;
- selecting coordinates of predetermined points (V1'-V4') of said transformed image; and
- identifying said geometrical transformation transforming said reference points into said predetermined points.

15. A method according to Claim 14, characterized in that said reference points (V1-V4) and said predetermined points (V1'-V4') are vertices of said deformed image and, respectively, of said transformed image.

16. A method according to Claim 1, characterized in that said step of generating a transformed image comprises the step of:
- associating (28) a brightness value of at least one characteristic point of said deformed image with a corresponding notable point of said transformed image.

17. A method according to Claim 14, characterized in that said step of generating a transformed image further comprises

the step of:
- binarizing (27) said brightness value of each said characteristic point using a binarization threshold to obtain a binarized brightness value;
and in that said step of associating comprises the step of storing said binarized brightness value for each said notable point of said transformed image.

18. A method according to Claim 17, characterized in that said binarization threshold is obtained by calculating a mean brightness of a portion of said deformed image.

19. A method according to Claim 1, characterized in that said geometrical transformation is a homograph.